

CLAIMS

What is claimed is:

1. An apparatus comprising:  
a wireless transceiver having a joint signal transmit/receive section, and a plurality of signal up/down conversion sections sharing said joint signal transmit/receive section, to transmit and receive signals in accordance with a first and a second protocol, in a coordinated manner, to and from network devices of a first and a second wireless network; and  
a controller coupled to the wireless transceiver to control said wireless transceiver to perform said transmits and receives in said coordinated manner.
2. The apparatus of claim 1, wherein the controller, in a coordinated manner, selectively couples a first signal up conversion section to the joint signal transmit/receive section to perform said transmit of signals to network device(s) of said first wireless network, while keeping a second signal up conversion section de-coupled from the joint signal transmit/receive section preventing signals from being transmitted to network device(s) of said second wireless network.
3. The apparatus of claim 2, wherein the controller further, in a coordinated manner, selectively couples a second signal up conversion section to the joint signal transmit/receive section to perform said transmit of signals to network device(s) of said second wireless network, while keeping the first signal up conversion section de-coupled from the joint signal transmit/receive section preventing signals from being transmitted to network device(s) of said first wireless network.

1 4. The apparatus of claim 1, wherein the controller, in a coordinated manner,  
2 selectively de-couples both a first and a second signal up conversion section from  
3 the joint signal transmit/receive section to prevent signals from being transmitted to  
4 network devices of said first and second networks.

1 5. The apparatus of claim 1, wherein the apparatus further comprises a signal  
2 processing section coupled to said wireless transceiver and said controller to  
3 process data for transmission by said wireless transceiver to said network devices of  
4 said wireless networks, and to process signals received by said wireless transceiver  
5 from said network devices of said wireless networks, in a coordinated manner,  
6 under the control of said controller.

1 6. The apparatus of claim 5, wherein the controller enables the signal  
2 processing section to simultaneously process signals received from network devices  
3 of said wireless networks, and down converted by signal down conversion sections  
4 of the wireless transceiver, and stops the signal processing section from processing  
5 signals output by said down conversion sections of the wireless transceiver.

1 7. The apparatus of claim 1, wherein the controller controls the wireless  
2 transceiver to perform said transmits and receives in a coordinated manner, in  
3 accordance with a time sharing schedule.

1 8. The apparatus of claim 7, wherein the controller comprises a processor  
2 adapted to control the wireless transceiver in a first transmit mode for the first

3 protocol, a second transmit mode for the second protocol, and a joint receive mode  
4 for both protocols, in accordance with the time sharing schedule.

1 9. The apparatus of claim 8, wherein the processor is further adapted to  
2 adaptively manage the time sharing schedule.

1 10. The apparatus of claim 9, wherein the processor is further adapted to  
2 adaptively manage the time sharing schedule based at least in part on transmit or  
3 receive workloads of said first and second wireless networks.

1 11. The apparatus of claim 10, wherein the processor is further adapted to  
2 monitor and track transmit or receive workloads of said first and second wireless  
3 networks.

1 12. The apparatus of claim 1, wherein the first and the second protocol are two  
2 protocols selected from a group consisting of Bluetooth, 802.11, 802.11a, 802.11b,  
3 and Home RF.

1 13. The apparatus of claim 1, wherein the joint signal transmit/receive section is a  
2 joint RF transmit/receive section, and the plurality of signal up/down conversion  
3 pairs are IF up/down conversion sections.

1 14. The apparatus of claim 1, wherein the apparatus is a computer having a form  
2 factor selected from a group consisting of a desktop type, a notebook type and a  
3 palm sized type.

1 15. The apparatus of claim 1, wherein the controller further comprises a first and  
2 a second transmit signal processing section to processing transmit data for  
3 transmission in accordance with the first and second protocols, and the controller, in  
4 a coordinated manner, selectively couples a signal up conversion section to the first  
5 transmit signal processing section to perform said transmit of signals to network  
6 device(s) of said first wireless network, while keeping the second transmit signal  
7 processing section de-coupled from the signal up conversion section, preventing  
8 signals from being transmitted to network device(s) of said second wireless network.

1 16. The apparatus of claim 15, wherein the controller further, in a coordinated  
2 manner, selectively couples the signal up conversion section to the second transmit  
3 signal processing section to perform said transmit of signals to network device(s) of  
4 said second wireless network, while keeping the signal up conversion section de-  
5 coupled from the first transmit signal processing section, preventing signals from  
6 being transmitted to network device(s) of said first wireless network.

1 17. In an apparatus having a wireless transceiver including a joint signal  
2 transmit/receive section, and a plurality of signal up/down conversion sections  
3 sharing the joint signal transmit/receive section, a method of operation comprising:  
4 (a) coupling a first signal up conversion section to the joint signal  
5 transmit/receive section to perform transmit of signals to network device(s) of a first  
6 wireless network in accordance with a first protocol, while keeping a second signal  
7 up conversion section de-coupled from the joint signal transmit/receive section to  
8 prevent signals from being transmitted to network device(s) of a second wireless  
9 network in accordance with a second protocol; and

10 (b) coupling the second signal up conversion section to the joint signal  
11 transmit/receive section to perform transmit of signals to network device(s) of the  
12 second wireless network in accordance with the second protocol, while keeping the  
13 first signal up conversion section de-coupled from the joint signal transmit/receive  
14 section to prevent signals from being transmitted to network device(s) of the first  
15 wireless network in accordance with the first protocol.

1 18. The method of claim 17, wherein

2 the apparatus further comprises a signal processing section coupled to said  
3 wireless transceiver to process data for transmission by said wireless transceiver to  
4 said network devices of said wireless networks, and to process signals received by  
5 said wireless transceiver from said network devices of said wireless networks, in a  
6 coordinated manner; and

7 the method further comprises enabling the signal processing section to  
8 simultaneously process signals received from said network devices of said wireless  
9 networks, and down converted by signal down conversion sections of the wireless  
10 transceiver, and stops the signal processing section from processing signals output  
11 by said down conversion sections of the wireless transceiver.

1 19. The method of claim 17, wherein the method further comprises (c) adjusting  
2 performance repetition of (a) and (b).

1 20. The method of claim 19, wherein (c) is performed adaptively based at least in  
2 part on transmit or receive workloads of the first and second networks.

1 21. The method of claim 20, wherein the method further comprises (d) monitoring  
2 transmit or receive workloads of said first and second networks.

1 22. In an apparatus having a wireless transceiver including a plurality of signal  
2 up/down conversion sections, and a controlling section having a first and a second  
3 transmit signal processing section, a method of operation comprising:

4 (a) coupling a signal up conversion section to a first transmit signal  
5 processing section to perform transmit of signals to network device(s) of a first  
6 wireless network in accordance with a first protocol, while keeping the signal up  
7 conversion section de-coupled from a second transmit signal processing section to  
8 prevent signals from being transmitted to network device(s) of a second wireless  
9 network in accordance with a second protocol; and

10 (b) coupling the signal up conversion section to the second transmit signal  
11 processing section to perform transmit of signals to network device(s) of the second  
12 wireless network in accordance with the second protocol, while keeping the signal  
13 up conversion section de-coupled from the first transmit signal processing section to  
14 prevent signals from being transmitted to network device(s) of the first wireless  
15 network in accordance with the first protocol.

1 23. A collection of apparatuses comprising:

2 a first apparatus equipped to communicate wirelessly in accordance with a  
3 first protocol;

4 a second apparatus equipped to communicate wirelessly in accordance with  
5 a second protocol; and

6 a third apparatus equipped to communicate wirelessly with said first and  
7 second apparatuses in accordance with said first and second protocols respectively,

8 as well as equipped to automatically coordinate transmit and receive operations  
9 conducted in accordance with said two protocols to enable the third apparatus to  
10 operate with said first and second apparatuses at the same time.

1 24. The collection of apparatuses of claim 23, wherein the third apparatus is  
2 further equipped to perform said automatic coordination of transmit and receive  
3 operations conducted in accordance with said two protocols in an adaptive manner,  
4 based at least in part on transmit or receive workloads of the two protocols.

1 25. The collection of apparatuses of claim 24, wherein the third apparatus is  
2 further equipped to monitor transmit or receive workloads of the two protocols.

1 26. A collection of networked apparatuses comprising:

2 a first plurality of apparatuses wirelessly networked together, with each  
3 apparatus being equipped to communicate wirelessly in accordance with a first  
4 protocol;

5 a second plurality of apparatuses wirelessly networked together, with each  
6 apparatus being equipped to communicate wirelessly in accordance with a second  
7 protocol; and

8 a master apparatus equipped to communicate wirelessly with said first and  
9 second plurality of apparatuses in accordance with said first and second protocols  
10 respectively, as well as equipped to automatically coordinate transmit and receive  
11 operations conducted in accordance with said two protocols to enable the master  
12 apparatus to manage and control said first and second plurality of apparatuses at  
13 the same time.

1 27. The collection of networked apparatuses of claim 26, wherein the master  
2 apparatus is further equipped to perform said automatic coordination of transmit and  
3 receive operations conducted in accordance with said two protocols in an adaptive  
4 manner, based at least in part on transmit or receive workloads of the two protocols.

1 28. The collection of networked apparatuses of claim 27, wherein the master  
2 apparatus is further equipped to monitor transmit or receive workloads of the two  
3 protocols.

1 29. A collection of networked apparatuses comprising:  
2 a first plurality of apparatuses wirelessly networked together, with each  
3 apparatus being equipped to communicate wirelessly in accordance with a first  
4 protocol;  
5 a second plurality of apparatuses wirelessly networked together, with each  
6 apparatus being equipped to communicate wirelessly in accordance with a second  
7 protocol; and  
8 a gateway apparatus equipped to communicate wirelessly with said first and  
9 second plurality of apparatuses in accordance with said first and second protocols  
10 respectively, as well as equipped to automatically coordinate transmit and receive  
11 operations conducted in accordance with said two protocols to enable the gateway  
12 apparatus to facilitate communication between said first plurality of apparatuses and  
13 said second plurality of apparatuses.

1 30. The collection of networked apparatuses of claim 29, wherein the gateway  
2 apparatus is further equipped to perform said automatic coordination of transmit and



3 receive operations conducted in accordance with said two protocols in an adaptive  
4 manner, based at least in part on transmit or receive workloads of the two protocols.

1 31. The collection of networked apparatuses of claim 30, wherein the gateway  
2 apparatus is further equipped to monitor transmit or receive workloads of the two  
3 protocols.

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